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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,864	03/04/2005	Alan G. Knapp	GB 030093	5468

24737 7590 01/23/2009
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
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EXAMINER	
HO, BAO QUAN T	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
01/23/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,864	KNAPP ET AL.	
	Examiner	Art Unit	
	BAO-QUAN T. HO	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/24/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kimura et al. (hereafter referenced as Kimura), US Patent 6,518,962..

As to claims 1 and 18, Kimura discloses an active matrix electroluminescent display device including an array of display (FIG. 1) comprising:

an electroluminescent display element (224);

active matrix circuitry including at least one drive transistor (223) for driving a current through the display element (col. 20 lines 50-57);

means for determining an overall brightness level (Comparison Circuit 21a, col. 21 lines 57-59) of an image to be displayed in a frame period; and means for controlling (Voltage control circuit 22a, col. 21 lines 59-67 to col. 22 lines 1 -6) the at least one drive transistor (223) of each pixel in dependence on a respective input signal providing a drive level (Current ID) for the pixel and in dependence on the overall brightness level (Reference current Iref).

As to claims 2 and 19, Kimura discloses wherein the means for controlling the at least one drive transistor comprises a signal processing device (Comparison Circuit 21a, col. 21 lines 57-59, the Comparison circuit compares the Current ID to a Reference Current Iref and process the Voltage control circuit 22a to adjust the driving voltage) for determining an overall brightness level and for processing the input signals for the pixels in dependence on the overall brightness level.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3, 5-7, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Mori, US Publication 2003/0025718.

As to claims 3 and 20, Kimura discloses a device as claimed in claim 2, Kimura also discloses wherein the signal processing device comprises a field store (Frame memory 207 can be used to store measure Current ID, col. 34 lines 58-62) for storing the input signals for an image, but Kimura disclose not specifically discloses a summation unit for summing the input signals for all pixels of the image in the field store to determine the overall brightness.

However, Mori discloses a summation unit (Brightness Detection Unit which detects using an integrator to determine the brightness information of the input video

signal, Page 1 paragraph [0038]) for summing the input signals for all pixels of the image in a field store (Frame memory 4) to determine the overall brightness.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have modified the signal processing device to use a summation unit such as an integrator as taught by Mori to be used in the signal processing device of Kimura for the purpose of gathering brightness information (Page 3 paragraph [0038].

As to claim 5 and 23, Mori discloses wherein the signal processing device further comprises a look up table (Table used to conduct calculations, Page 7 paragraphs [0113]-[0114]) for modifying the input signals for the stored image in dependence on the overall brightness level.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have modified the signal processing device to further comprise a look up table as taught by Mori to be used in the signal processing device of Kimura for the purpose of performing faster calculations (Page 7 paragraph [0114].

As to claim 6, Mori discloses wherein the signal processing device is adapted to calculate the look-up table in dependence on the overall brightness level (Page 7 paragraphs [0113]-[0114]).

As to claim 7, Mori discloses wherein the signal processing device operates to reduce the maximum brightness level to which any pixel is drive in response to an increase in the overall brightness of an image (The display panel brightness level is reduced if the mean brightness is high, Page 3 paragraph [0044]).

5. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura.

As to claims 4 and 22, Kimura discloses a device as claimed in claim 2, and Kimura discloses wherein the signal processing device is adapted to employ gamma characteristics for processing the input signals in dependence on the overall brightness level (Kimura discloses the use of well-known processing circuit 1002 using a gamma-correction circuit, col. 40 lines 17-21).

6. Claims 8, 21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Feldman et al. (hereafter referenced as Feldman), US Patent 6,582,980.

As to claims 8 and 24, Kimura discloses a device as claimed in claim 2, but Kimura does not specifically discloses wherein the signal processing device comprises digital to analogue converter circuitry for converting digital inputs into the input signal, and wherein the digital to analogue converter circuitry is controllable in dependence on the overall brightness level.

However, Feldman discloses a signal processing device (Signal processing circuit 14) comprises digital to analogue converter (Display Driver 30 may contain a digital-to-analog converter, col. 11 lines 60-67) circuitry for converting digital inputs into the input signal, and wherein the digital to analogue converter circuitry is controllable in dependence on the overall brightness level (The signal processing circuit processes the overall brightness level and supplies the signal to the display driver, wherein the digital to analog converter converts the signal.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have modified the signal processing circuit as taught by Feldman to have an digital to analog converter within the signal processing circuit of Kimura for the purpose of producing analog signals for image display that expect analog drive (col. 11 lines 63-65).

As to claim 21, Kimura discloses a method as claimed in claim 19, while Feldman discloses wherein processing the input signal comprising modifying the input signals using a look up table (Table lookup logic, col. 10 lines 4-9), the address of which is selected in dependence on the input signal and the overall brightness level.

7. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, in view of Feldman, and further in view of Murai et al. (Hereafter referenced as Hiroykui), JP application JP 2001-1305511 A.

As to claim 9, Kimura discloses a device as claimed in claim 1, but does not specifically discloses wherein the active matrix circuitry comprises first and second drive transistors in parallel each connected between a respective power supply line and the EL display element , the input to the pixel being provided to the gates of the first and second drive transistors, and wherein the first the drive transistor is supplied with a first supply voltage and the second drive transistor is supplied with a second supply voltage, at least one of the supply voltages being variable in dependence on the on the overall brightness level.

However Murai discloses in FIG. 6 wherein a active matrix circuitry comprises first and second drive transistors (Transistors 14 and 13, respectively) in parallel each

connected between a respective power supply line (Lines 1012 and 3, respectively) and the display element (Element 1102), the input to the pixel being provided to the gates of the first and second drive transistors (14 and 13, respectively), and wherein the first the drive transistor (14) is supplied with a first supply voltage (Voltage seen in FIG. 4e) and the second drive transistor (13) is supplied with a second supply voltage (Voltage seen in FIG. 4c), at least one of the supply voltages being variable in dependence on the on the overall brightness level (Page 11 and bottom half of paragraph [0030]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have modified the active matrix circuitry as taught by Murai in place of the circuitry of Kimura to use two drive transistors for the purpose of lower power dissipation (Page 11 and bottom half of paragraph [0030]).

Although Murai uses a Liquid crystal element, the Feldman reference teaches LCD panels and other flat-panel display, such as Electroluminescent display, technologies employ similar device structures (col. 1 lines 29-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to have used the circuitry structure as taught by Murai in place of Display structure of Kimura as Feldman teaches to employ the benefit of lower power dissipation in a display panel as suggested above by Murai.

As to claim 10, Murai discloses in FIG. 6 wherein the input to the pixel is provided to the gates of the first and second drive transistors (14 and 13, respectively) through an address transistor (Transistor 11).

As to claim 11, Murai discloses wherein the first supply voltage (FIG. 4e) is fixed and the second supply voltage (FIG. 4c) is variable (The interval of Power Line 3 can be varied, Page 11 and bottom half of [0030]).

As to claim 12, Murai discloses wherein the first and second supply voltages can be equal (Lines 1012 and 3, respectively, are the same electric potential, Page 11 paragraph [0029]).

Response to Arguments

8. Applicant's arguments filed 10/24/2008 have been fully considered but they are not persuasive.

On page 8, forth paragraph, Applicant argues that "Kimura's comparison circuit 21a can't determine an overall brightness level of **an image to be displayed in a frame period**." Examiner disagrees, the comparison circuit compares the measures the current ID with the reference current Iref. The compared results from the comparison circuit 21a are used to determine and correct the overall brightness level changed due to the deterioration over time of the device 224, Col. 21 lines 40-46. The currents, ID and Iref, and the brightness level are linked together, whereby Kimura uses the comparison circuit to determine brightness level and provide a correction to the brightness level. For example, when the current ID is unchanged with low current than the overall brightness level is decreased (Kimura uses the term "luminescence", however they are interchangeable) but as the current ID is changed, due to the comparison circuit 21a and voltage control 22a, to be higher than the overall

luminescence level is increased compared to the previous unchanged current, Col. 22 lines 10-44. Also

On page 8 of the last paragraph and page 9 of the continuing paragraph, Applicant states that Examiner is inconsistent.

The Examiner analogized the comparison circuit 21a to Applicants' "means for determining..." and the reference current Iref is cited to show that the comparison circuit 21a uses the reference current Iref as a brightness level benchmark. The limitation "... at least one drive transistor of each pixel in dependence on a respective input signal providing a drive level for the pixel and in dependence on the overall brightness level", Examiner cited that the transistor 223 of Kimura depends on the current ID and the reference current Iref, which is used to determine the overall brightness. When the brightness level is determined the voltage control circuit 22a adjusts the output voltage Voom of the common electrode driving circuit 13 which controls and provides to driving transistor 223, Seen in FIG. 1 and Col. 21 lines 59-63.

On page 9, first paragraph, Applicant states "Kimura's voltage control circuit 22a does not control **individual** drive transistors of each pixel ...", however the limitation "control **individual** drive transistors of each pixel" is not recited in amended claim 1 or 18. The claim recites "means for controlling the at least one drive transistor ...", wherein Kimura teaches controlling drive transistor 223 to supply the adjusted output voltage Voom to change the current ID, which in turns corrects the brightness level.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAO-QUAN T. HO whose telephone number is (571)270-3264. The examiner can normally be reached on M-F, 8:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh D. Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BTH

/Chanh Nguyen/
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